the circulation in the submaxillary gland. Here, also, the amount of blood issuing from a venous branch was registered. Stimulation of the sympathetic nerve expelled a sudden slight jet of blood; the result, evidently, of the sudden contraction of the arteries. After this the current was reduced, reaching its minimum in about twenty-five seconds, both when the stimulation lasted fifty seconds, or on the other hand only ten seconds. Within a minute after cessation of the stimulus, the current regained its original rate. Stimulation of the chorda tympani increased the rapidity considerably, but only for a short time, since the irritability of that nerve is rapidly exhausted. Curare, in ordinary doses, does not paralyze these nerves. On stimulating simultaneously both the sympathetic and the chorda tympani with electric currents of equal strength, the action of the sympathetic masks completely that of the other nerve. As long as the stimulation continues, the blood-current is diminished in the same way, as if the sympathetic alone were excited. But on interrupting the faradization of both nerves, the action of the sympathetic stops abruptly, and the after effects of the excited chorda tympani are manifested by a considerable increase in the rapidity of the circulation.

F. Klug examined the sense of temperature in the skin by means of a thermo-æsthesiometer, an æsthesiometer, the points of which could be kept at any temperature, by means of a current of water passing through them. The distance was noted at which the points could just be recognized as two. As a general result it was found that the cutaneous sensibility increased with the difference in temperature between the skin and the instrument. The least sensibility was manifested when the two points had a temperature of 20° C.; the same was the case when one point was cooled to 5° C., while the other was warmed to 50° C. The most acute sensibility was found when both points were cooled to 5° C., or warmed to 50° C., and in the latter case applied to the skin, cooled by immersion in cold water.

The volume contains besides, three articles on the passage of lymph, and one on the histology of the lymphatic capillaries.

H. G.

V.—CEREBRAL HYPERÆMIA.

THE RESULT OF MENTAL STRAIN AND EMOTIONAL DISTURBANCE. By W. A. HAMMOND, M. D. G. P. Putnam's Sons, New York. 12 mo. 108 pages.

In this monograph, from the prolific pen of Dr. Hammond, we have certain views, long entertained by him, enunciated once again and much amplified. As the title rather clearly indicates, the subject is that of the excessive and sustained hyperæmia, which results from over-work or over-excitation of the nervous system, more particularly the nervous centres within the cranial cavity.

That nervous action or excitation is attended by an increased circulation of blood in those parts which are the seats of such action or excitation, is now so well known as to be beyond dispute, it would seem. It is impossible to think or feel without some change in the character of the circulation of the parts which are the seats of the thought or feeling. It is, also, on the basis of present knowledge, to be recognized as true, that over-action, or over-excitation, will lead to a corresponding morbid increase in the quantity of the blood in the parts involved. More action involves more tissue waste. More tissue waste involves a more profuse supply of nutritive materials, and this means more blood; and, finally, as a matter of course, hyperæmia, which differs in seat, degree and duration, according to the seat, intensity and duration of the action. "Cerebral hyperæmia" is nothing new, and hence any considerable value the work is likely to possess, we should expect to find under the heads of symptoms, pathological details, or practical management, hygienic and medical. After the preface and a short introduction, a chapter is devoted to "symptoms." But good as the account is, it does not materially differ, except in fullness, from that given already in the author's work on "Diseases of the Nervous System."

It will be impossible to discuss, in this notice, the really difficult questions which would at once arise, if the attempt should be seriously made to connect, in a casual way, the various morbid phenomena in Dr. Hammond's list of "symptoms" of cerebral hyperæmia, with that condition. Many of these symptoms may, according to our own observation, be connected with conditions quite different from hyperæmia, or are even thus far inexplicable.

Next comes a chapter on "Differential Diagnosis." This is quite an instructive one, but we cannot tarry to discuss it.

The next brief chapter is given to "Causes." But it is the most unsatisfactory in the book.

The next chapter, of less than one page, is given to "Prognosis," which, under suitable treatment, is properly said to be favorable.

That on "Morbid Anatomy and Pathology," is brief, and upon the whole clear, but too brief and devoid of details to be of much service to the exacting professional reader.

The chapter on "Treatment" is practical and valuable, and will be the first, and we were about to say the only one to which too many physicians will turn; too many of whom only want a *name* for a morbid state, say "cerebral hyperæmia," and then, without any farther consideration, a "recipe." To the work itself we must refer the reader for brief but valuable directions as to treatment. We can heartily commend it to such of our readers as may be seeking information on the subject of which it treats.

But we must say we feel disappointed that Dr. Hammond has apparently thrown away the opportunity which the publication of this *brochure* afforded, of more fully expounding the inner mechanism of the class of cases to which the work relates. Having said thus much, we now proceed to try and justify our feeling of disappointment. Dr. Hammond has—so it seems to us—missed, in great measure, one of the prime factors of the class of cases he has partially described. There is not simply hyperæmia in such cases. There is, besides, a *nutritive lesion*, which in its genesis antedates the hyperæmia, and which, except in its later developments, has no dependence on the hyperæmia. In proof of which, it may be said, among other things, that the lesion of which we speak is entirely consistent with *anæmia.* In our opinion, the nutritive lesion mentioned outranks in importance the hyperæmia in the majority of the cases described by Dr. Hammond.

The order of phenomena, in uncomplicated cases, seems to us to be as follows: Action of the brain, as already said, whether in thought or emotion, leads to waste of brain tissue. In the ordinary way, this waste creates a demand for an extra supply of nutritive materials, and hence, an extra supply of blood; and this, when it occurs, is hyperæmia.

In the ordinary way, rest, especially during sleep, gives the needed opportunity for repair. As this process goes on, the former hyperæmia subsides, giving place to a relative anæmia. This is the true order of phenomena in health. But if the periods of action or excitation of the brain are too prolonged, or too intense, waste becomes excessive, and *pari passu*, the hyperæmia becomes excessive. If the subsequent period of rest is too short in which for repair to be made, the hyperæmia, which follows in the wake of brain waste, does not fully subside until the next period for activity sets in, and the process of waste once again goes on, and is added to the former waste, and all the while the hyperæmia persists, and becomes more pronounced and permanent, as the vessels by prolonged distension lose their tonus. The excessive blood supply is at first given in obedience to a local organic *demand*, but at last depends on the *passive* distended condition of the blood-vessels, which have at last lost their tonus. Still the excessive waste remains. The distended vessels; the excessive amount of blood in the part, the nutrition of which has suffered; the slow, imperfect circulation; the tendency for mere physical exudation to preponderate over the delicate normal interchanges between blood within and tissue without the vessels, impedes or wholly abolishes the normal processes of repair.

Here, then, we have a true cerebrasthenia, the two principal factors in which are excessive waste of tissue and hyperæmia, at first active, and last of all passive. The former does not primarily depend on the latter, which is at first a mere incident in the case, and not until its later stages does it rise into striking prominence. The action and the resulting waste are the *causes* of the hyperæmia. The worn and wasted condition of the brain-structure may continue after the hyperæmia has subsided, and may, from first to last, exist with anæmia rather than hyperæmia. The nutritive lesion we have alluded to and insisted on, is the undertone of the picture. In the class of cases described by Dr. Hammond, it is the first element to appear and the last to disappear. But in the work of Dr. Hammond's, this element is in great measure disregarded. Hyperæmia is made the sole important factor, from beginning to end; but incorrectly so, it seems to us. The treatment found most beneficial confirms the view we have hinted at. It is not enough to use artificial means for removing the hyperæmia, but attention is found necessary as to diet and medicines, such as phosphorus, iron, strychnia, quinine, etc., to improve general, and more particularly, nerve nutrition. It is found necessary to secure more rest, especially of the brain. Cessation or change of occupation are necessary.

But we cannot push this discussion farther. We have intended simply to bring into clearer relief than Dr. Hammond seems to have done, what, taken altogether, seems to us to be—except in the more advanced stages, or acuter forms of hyperæmia—the most fundamental, if not the most important factor in the large class of cases referred to by Dr. Hammond. As is the rule with the writings of Dr. Hammond, the style is a model for clearness and ease.

SHORTER NOTICES.

I. THE SCIENCE AND ART OF SURGERY. Being a Treatise on Surgical Injuries, Diseases and Operations. By John Eric Erichsen, F. R. S., F. R. C. S., etc. Revised by the author from the Seventh and enlarged English Edition. Illustrated with Eight Hundred and Sixty-two Engravings on Wood. 2 vols., 947 and 989 pages. Henry C. Lea, Philadelphia, 1878. Chicago: Jansen, McClurg & Co.

II. THE ELEMENTS OF THERAPEUTICS. A Clinical Guide to the Action of Medicines. By Dr. C. Binz, Prof. of Pharmacology in the University of Bonn. Translated from the Fifth German Edition, and edited with additions, in conformity with the British and American Pharmacopeias. By Edward E. Sparks, M. A., M. B., Oxon, etc. 347 pages. Wm. Wood & Co., New York, 1878. Chicago: Jansen, McClurg & Co.

III. LANDMARKS—MEDICAL AND SURGICAL. By Luther Holden, F. R. C. S., etc. From the Second English Edition. Henry C. Lea, Philadelphia, 1878. Chicago: Jansen, McClurg & Co.

IV. DIE VASCULAREN UND PERIVASCULAREN SPALTRAUME DES GEHIRNS. By Dr. Med. Julius Hoffmann, of New York. Berlin, 1878. (*The vascular and perivascular spaces in the brain.*)

V. MORTUARY EXPERIENCE OF THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK, with Tabulated Reports and an Analysis of the Causes of Death. By G. S. Winston, M. D., W. R. Gillette, M. D., E. J. Marsh, M. D. Volume II. New York: 1877. Printed by order of the Board of Trustees.

VI. STUDIES IN PATHOLOGICAL ANATOMY. By Francis Delafield, M. D., Adjunct Professor of Pathology and Practical Medicine, College of Physicians and Surgeons. Nos. 1 and 2. New York: Wm. Wood & Co., 1878.

I. These two bulky volumes deserve a longer and more elaborate notice than it is our privilege to accord them in this journal. It is not necessary, however, to dilate on the merits of this standard text-book, which is probably as well known to the medical profession as any other on the same subject. The revision of this American from the latest English edition, by the author himself, is a fact in its favor, and we find abundant reference to the later results of American surgery on looking over the volumes. The work deserves, and there is every reason to believe that it will obtain, even an increased popularity amongst the medical profession of this country.

II. This work contains in a small compass an account of all, or nearly all, the remedies recognized in the German, British and the United States Pharmacopeias, and as such, it will prove quite convenient for occasional reference to the practitioner. As a student's text-book, however, it is altogether too brief to be satisfactory, except, indeed, to such as find brevity in such subjects always acceptable. It is certainly no substitute for such large works as those of G. B. Wood, Ringer, Pareira, and Stille; to say nothing of the admirable work of H. C. Wood, which only requires certain amendments to come very nearly to the ideal treatise, and the very convenient student's manual of Bartholow. But it is certainly a very handy compendium, including the accounts of a much larger number of medicinal substances and preparations than are usually included in books of this kind, and one that will certainly be of use to the practitioner in this country, where the preparations of the German as well as of the United States Pharmacopeia are often in use.

The remarks on the therapeutic uses of the drugs are indeed often too brief to be useful. If we take those in regard to aconite, for example, we have the following: "This drug is sometimes recommended (1) as an anodyne in neuralgia, especially when it affects the fifth nerve; and (2) to relieve the pain and fever of acute rheumatism. Nothing definite, however, is known about it." This is certainly inadequate and incorrect enough for the merest cram book; it is perhaps the worst treatment of an important remedial agent that we can find in the volume, but there are other cases that approach it.

III. The Medical and Surgical Landmarks is a useful *resumé* of a number of the more important topographical anatomical data useful to the physician and surgeon in a convenient form. That it has reached a second edition in two years is a sufficient evidence of its popularity and value. The only suggestion we have to make is that in future editions the external topography of the skull corresponding to the principal convolutions and centres be also added. This suggestion, however, is probably needless, as these points will doubtless be attended to in any event in future editions.

IV. The author has undertaken the very commendable task of reducing the problematical descriptions of earlier authors to a uniform and comprehensible basis. After giving a brief notice of the views of Hasse, Kölliker, Bruch, Henle, Virchow, Robin, His, Frommann, Huguenin, Roth, Obersteiner, Golgi, Boll, Tuke, and Arndt, he proceeds to analyze a recent article by an American writer, Mr. Theodore Deecke, of Utica. It may interest our readers to know, that Dr. Hoffmann finds that Mr. Deecke has not only not discovered (as he claims) anything new; nay, that his views are not even original, but that he has woefully confused such views of other writers as he has chosen to adopt. Indeed, we consider the fact with which Dr. Hoffmann concludes the discussion of Mr. Deecke's contribution, as characteristic of a certain species of microscopic work; namely, that Mr. Deecke recommends *water* as an *indifferent* medium for the examination of cerebral tissues. Dr. Hoffmann remarks that water may be an indifferent fluid for drinking purposes, but that no competent pathologist has ever regarded, or could ever regard it as *indifferent* for histological purposes.

We can indorse every conclusion arrived at by the author, except one, where he states, that "for the present it is of no importance to determine the connection between the perivascular and pericellular spaces." We also fail to find any notice of the fact, that in the very finest cerebral capillaries, the walls consist simply of a structureless protoplasmic tube.

V. This volume is the result of a detailed study of the statistics of the mortuary experience of the New York Mutual Life Insurance Company for thirty years, and is the continuation of the former volume, reviewed in this journal (July, 1876). We need not say much in addition to what was said in the former notice; a very large portion of this volume is occupied with a discussion of the mortality from consumption, and proportionally small space is given to that from other affections. In the remarks on the mortality from nervous diseases, a striking point is the vagueness with which these affections are designated in the certificates of death, and this is remarked by the compilers of the volume. We do not, however, see exactly the point where they class "softening of the brain" and "epilepsy" as equally indefinite terms. Though not as sumptuous a volume as its predecessor, this is a very handsomely gotten up book. Both typography and paper are alike elegant.

VI. We have received the first two numbers of this work, containing respectively three and five plates of enlarged microscopic sections, illustrating connective tissue and the structural anatomy of the plura, with accompanying text. Carried out on the plan here indicated, the work can hardly fail to be useful, and with its subscription price, accessible to the profession.